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John E. Whitaker
Merchant & Gould P.C.
P.O. Box 2903
Minneapolis, MN 55402-0903

EXAMINER	
GROSS, KENNETH A	

ART UNIT	PAPER NUMBER
2122	15

DATE MAILED: 01/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PAE

Office Action Summary	Application No.	Applicant(s)	
	09/560,269	NOLTE, BARRY M.	
	Examiner	Art Unit	
	Kenneth A Gross	2122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-45* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This action is in response to the Amendment filed November 17th, 2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 10-12, 16-18, 25-27, 31-33, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angel et al. (U.S. Patent Number 6,314,558) in view of Bittner et al. (U.S. Patent Number 6,397,380).

In regard to Claim 1, Angel teaches the following: determining a set of probe locations in an application (Column 3, lines 16-20); and inserting probes only at determined probe locations in the application (Column 3, lines 16-20). Angel does not teach eliminating pairs of probe locations that would produce redundant information. Bittner, however, does teach eliminating pairs of redundant calculations in a computer program to aid in program efficiency (Column 1, lines 43-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of determining a set of probe locations in an application and inserting probes only at determined probe locations in the application, as taught by Angel, where the method further includes eliminating pairs of probe locations that would produce redundant information, as taught by Bittner, since this removes redundant, and hence time-consuming calculations.

Claims 16 and 31 are medium and computer arrangement claims that correspond with method Claim 1, and Claims 16 and 31 are rejected for the same reasons as Claim 1, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 1.

In regard to Claim 2, Angel teaches determining entry and exit points of a plurality of functions constituting at least part of the application (Column 3, lines 20-22). Claims 17 and 32 are claims that directly correlate with claim 2 and are rejected for the same reasons as Claim 2.

Claims 17 and 32 are medium and computer arrangement claims that correspond with method Claim 2, and Claims 17 and 32 are rejected for the same reasons as Claim 2, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 2.

In regard to Claim 3, Angel teaches identifying the entry and exit points as probe locations at which probes are to be inserted (Column 3, lines 16-22). Claims 18 and 33 are claims that directly correlate with claim 3 and are rejected for the same reasons as Claim 3.

Claims 18 and 33 are medium and computer arrangement claims that correspond with method Claim 3, and Claims 18 and 33 are rejected for the same reasons as Claim 3, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 3.

In regard to Claim 10, Angel teaches using the instrumentation to collect information relating to the execution of the application (Column 32, lines 60-67). Claims 25 and 40 are claims that directly correlate with claim 10 and are rejected for the same reasons as Claim 10.

Claims 25 and 40 are medium and computer arrangement claims that correspond with method Claim 10, and Claims 25 and 40 are rejected for the same reasons as Claim 10, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 10.

In regard to Claim 11, it would have been obvious to analyze collected data in order to generate an application profile, optimize the code, or fix errors in the code. Claims 26 and 41 are claims that directly correlate with claim 11 and are rejected for the same reasons as Claim 11.

Claims 26 and 41 are medium and computer arrangement claims that correspond with method Claim 11, and Claims 26 and 41 are rejected for the same reasons as Claim 11, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 11.

Claim 12 is a method claim that contains limitations already addressed in the rejections of Claims 1, 2, 3, 10, and 11, and is rejected for the same reason as these Claims.

Claims 27 and 42 are medium and computer arrangement claims that correspond with method Claim 12, and Claims 27 and 42 are rejected for the same reasons as Claim 12, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 12.

4. Claims 4, 6, 19, 21, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angel et al. (U.S. Patent Number 6,314,558) in view of Bittner et al. (U.S. Patent Number 6,397,380) and further in view of Grossman et al. (U.S. Patent Number 6,332,213).

In regard to Claim 4, Angel and Bittner teach the method of Claim 1, but do not teach identifying a first location within the application at which a function call directs execution of the

application to a second location outside of a current module, and inserting a first probe before the first location and a second after the first location. Grossman, however, does teach a method of selecting portions of code in which to place instrumentation (Column 19, lines 1-3), said portions corresponding to "operations that cause program variables to become defined or undefined" (Column 19, lines 24-25). These operations are defined in the specification to include "a function call or a return from a function call" (Column 11, lines 52-56). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 1, further identifying a first location within the application at which a function call directs execution of the application to a second location outside of a current module, and inserting a first probe before the first location and a second after the first location, as taught by Grossman, since this allows information about what occurs and changes during a function call.

Claims 19 and 34 are medium and computer arrangement claims that correspond with method Claim 4, and Claims 19 and 34 are rejected for the same reasons as Claim 4, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 4.

In regard to Claim 6, it was shown above that Angel and Bittner show a method of placing instrumentation code in entry and exit points of functions. Grossman teaches that it is desirable to place instrumentation code before and after function calls. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to insert a probe in a first location, where said first location is before a function is called and also to insert a probe in a second location, where said second location is at the start of a function that the function call returns to after execution, in order to better instrument the program.

Claims 21 and 36 are medium and computer arrangement claims that correspond with method Claim 6, and Claims 21 and 36 are rejected for the same reasons as Claim 6, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 6.

5. Claims 8, 23, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angel (U.S. Patent Number 6,314,558) in view of Bittner et al. (U.S. Patent Number 6,397,380) and further in view of Yellin (U.S. Patent Number 5,761,513).

In regard to Claim 8, it was shown above that Angel and Bittner teach a method of placing instrumentation code in entry and exit points of functions. Angel further shows placing instrumentation code in the presence of a 'throw' operation (Figure 18 and Column 25, lines 20-34). Angel does not show placing instrumentation code at the beginning and end of a block of code, where the block of code is where the application is directed to in the occurrence of an error. However, Yellin teaches that "an exception handler 100 is a procedure" and is "executed whenever the applicable exception gets thrown during execution" (Column 1, lines 15-20). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to place instrumentation code at the beginning and end of the exception handing function as taught by Angel, where the exception handling function is a block of code to which execution of an application is directed upon in the occurrence of an error, since this would allow for the collection of data during an exception.

Claims 23 and 38 are medium and computer arrangement claims that correspond with method Claim 8, and Claims 23 and 38 are rejected for the same reasons as Claim 8, where

Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 8.

6. Claims 5, 7, 20, 22, 35, and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angel et al. (U.S. Patent Number 6,314,558) in view of Bittner et al. (U.S. Patent Number 6,397,380) and further in view of Grossman et al. (U.S. Patent Number 6,332,213), Whygodny (U.S. Patent Number 6,282,701), Miller (U.S. Patent Number 6,438,512) and O'Donnell (U.S. Patent Number 6,374,369).

In regard to Claim 5, Grossman and Bittner teach the method of Claim 4, but do not teach that the first probe is configured to collect an address of a first and second function in which the identified first and second location is located, a first stack pointer, and a first time indicator, and the second probe is configured to collect the address of the second function, a second stack pointer, and a second time indicator. Whygodny, however, does teach a method of monitoring and analyzing a computer program using tracing, where the trace data collected comprises "function calls (including the assembly address of the called function)" and "function return values (including function address)" (Column 29, lines 6-9). Whygodny does not teach collecting a stack pointer or a time indicator. O'Donnell, however, does teach collecting starting and ending times before and after a function call (Column 1, lines 45-49). O'Donnell does not teach collecting a stack pointer. Miller, however, does teach monitoring a program's performance by periodically interrupting program flow, and calling a function that returns a stack (Column 3, lines 10-11). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 4, as taught by Grossman and Miller, and further configure two probes for monitoring program performance, both probes collecting the

addresses of the calling and called function as taught by Whygodny, a stack pointer as taught by Miller, and a time indicator as taught by O'Donnell, since gathering as much data as possible aids in better program analysis.

Claims 20 and 35 are medium and computer arrangement claims that correspond with method Claim 5, and Claims 20 and 35 are rejected for the same reasons as Claim 5, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 5.

In regard to Claim 7, Angel, Bittner, and Grossman teach the method of Claim 6, but do not teach that the first probe is configured to collect an address of the calling function, an address of the called function, a first stack pointer, and a first time indicator, and the second probe is configured to collect the address of the called function, a second stack pointer, and a second time indicator. Whygodny, however, teaches a method of monitoring and analyzing a computer program using tracing, where the trace data collected comprises "function calls (including the assembly address of the called function)" and "function return values (including function address)" (Column 29, lines 6-9). Whygodny does not teach collecting a stack pointer or a time indicator. O'Donnell, however, does teach collecting starting and ending times before and after a function call (Column 1, lines 45-49). O'Donnell does not teach collecting a stack pointer. Miller, however, does teach monitoring a program's performance by periodically interrupting program flow, and calling a function that returns a stack (Column 3, lines 10-11). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 6, as taught by Angel, Bittner, and Grossman, and further configure two probes for monitoring program performance, both probes collecting the addresses of the calling

and called function as taught by Whygodny, a stack pointer as taught by Miller, and a time indicator as taught by O'Donnell, since gathering as much data as possible aids in better program analysis.

Claims 22 and 37 are medium and computer arrangement claims that correspond with method Claim 7, and Claims 22 and 37 are rejected for the same reasons as Claim 7, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 7.

7. Claims 9, 24, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angel (U.S. Patent Number 6,314,558) in view of Bittner et al. (U.S. Patent Number 6,397,380) and further in view of Yellin (U.S. Patent Number 5,761,513), Whygodny (U.S. Patent Number 6,282,701), Miller (U.S. Patent Number 6,438,512) and O'Donnell (U.S. Patent Number 6,374,369).

In regard to Claim 9, Angel, Bittner, and Yellin teach the method of Claim 8, but do not teach that the first probe is configured to collect an address of the block of code, a first stack pointer, and a first time indicator, and the second probe is configured to collect the address of the block of code, a second stack pointer, and a second time indicator. Whygodny, however, does teach a method of monitoring and analyzing a computer program using tracing, where the trace data collected comprises "function calls (including the assembly address of the called function)" and "function return values (including function address)" (Column 29, lines 6-9). Whygodny does not teach collecting a stack pointer or a time indicator. O'Donnell, however, does teach collecting starting and ending times before and after a function call (Column 1, lines 45-49). O'Donnell does not teach collecting a stack pointer. Miller, however, does teach monitoring a

program's performance by periodically interrupting program flow, and calling a function that returns a stack (Column 3, lines 10-11). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to perform the method of Claim 8, as taught by Angel, Bittner, and Yellin, and further configure two probes for monitoring program performance, both probes collecting the addresses of the calling and called function as taught by Whygodny, a stack pointer as taught by Miller, and a time indicator as taught by O'Donnell, since gathering as much data as possible aids in better program analysis.

Claims 24 and 39 are medium and computer arrangement claims that correspond with method Claim 9, and Claims 24 and 39 are rejected for the same reasons as Claim 9, where Angel teaches a medium (Figure 2) and computer arrangement (Figure 1) to carry out the method of Claim 9.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 12, 16, 27, 31, and 42 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Gross whose telephone number is (703) 305-0542. The examiner can normally be reached on Mon-Fri 7:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on (703) 305-4552. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

KAG

TUAN DAM
SUPERVISORY PATENT EXAMINER